Chapter 13
Best Teaching and Technology Practices for the Hybrid Flipped College Classroom

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ABSTRACT

Two cases of the flipped classroom approach, one undergraduate course and one a graduate course, are used to demonstrate the different ways that flipping instruction can occur in both F2F and online courses, thus, extending the notion of hybrid and flipped teaching decisions with F2F and virtual classrooms. Both cases are summarized in terms of instructional design decisions, the models of teaching framework, and research conducted on the courses. Findings from research conducted on both courses indicate that a flipped classroom approach can enhance the teaching of both F2F and online courses as it provides instructors an opportunity to adapt instruction to meet the individual needs of students. Recommendations, based on this course development work, are provided for undergraduate and graduate courses in terms of access, meaningful activities, and feedback.

INTRODUCTION

A flipped classroom teaching model promotes active learning in the classroom, provides more in-class time for student-centered activities and cultivates confidence in students. Direct instruction is moved from the classroom to online delivery usually through video, while classroom activity focuses on whole class application of knowledge and skills and instructor attention to student needs. Benefits to the flipped classroom approach have been cited as increased student achievement, increased student engagement, and improved attitudes toward learning (Hamdan, et al, 2013).

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Two cases are discussed, one undergraduate and one graduate. A face-to-face (F2F) undergraduate course provides an example of a hybrid flipped classroom. Direct instruction was divided among lectures delivered in the classroom and lectures delivered via video were assigned as homework. By moving half of the lectures outside of the classroom, half of the F2F sessions were focused on student questions, problem solving, and cooperative learning activities.

Hybrid instruction is typically understood as a mix of face-to-face and online instruction. Online activity may include a mix of synchronous and asynchronous activities, with instruction being delivered through real-time chats and discussion rooms. The second case study of an online graduate course provides an example of a virtual flipped classroom. Instruction is delivered asynchronously as audio and video clips within a set of modules, while feedback by the instructor and between peers is conducted in both real-time discussions and instructor-produced video assessment of whole class performance. Hybrid learning can be better understood not only as a mix of F2F and online deliveries but "as a fundamental redesign of the instructional model characterized by increases in interaction between student-instructor, student-student, student-content and student-outside resources" (Dziuban, et al, 2004, p. 3).

Section one reports on the background and use of the college flipped classroom. Section two documents the two cases describing course features using two perspectives, instructional design decisions (Shambaugh & Magliaro, 1997) and the models of teaching framework (Joyce, Weil, & Calhoun, 2014). Section three identifies best teaching and technology practices based on the research conducted on these two college courses.

USE OF THE FLIPPED CLASSROOM

Pedagogical Trends Leading to Flipped Classroom

Initially used in the 1960s, educators returned to instructional video through digital formats in F2F classrooms (i.e., movie clips, digital whiteboards) and hybrid classrooms where video was viewed in both real time and asynchronous activities. Concerns with passive learning led to more active approaches and an increase in instructor feedback as needed by each student (Ent, 2016).

The research for flipped classroom can be grounded in the work of Bransford, Brown, and Cocking (2000), who reported that students need factual knowledge, conceptual understanding of how this knowledge is structured, and activities which help the student to retrieve and apply this knowledge. In terms of learning mathematics, one of the content areas in this chapter, the literature recommends that educators promote mastery learning and conceptual understanding (Ames & Archer, 1988), model the use of learning strategies (Zimmerman, 1990), and convey the value and utility of mathematics (Eccles et al., 1983). Many universities have integrated technology into their mathematics courses in an effort to combat low levels of motivation and to bolster student mastery of mathematical procedures and conceptual understanding of math concepts. Rakes, Valentine, McGatha, and Ronau (2010) completed a meta-analysis of literature regarding the instruction of algebra and concluded that students perform better when instruction incorporates the use of technology and manipulatives to foster conceptual understanding rather than procedural skills.